

Life in plastic, it's fantastic!

Differences between young and old in artifact word meanings

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Introduction

Stability of concepts for concrete nouns is thought of as a necessity in a highly variable world and it is assumed that mental life would be chaotic without it (Keil, 1994; Smith & Medin, 1981). On the other hand variability is observed on many different levels. Meanings of words change over time and across communicative contexts. Even at the individual level individuals disagree on the items they are willing to endorse as a category member (McCloskey & Glucksberg, 1978) related to demographic variables such as age, gender and education level. This study aimed to shed light on the balance between stability and flexibility by relating individual variation to larger scale variation.

Method

Materials: pictures of common household objects (Ameel, Storms, Malt, & Sloman, 2005)

3 roughly equivalent category pairs in French and Dutch
fles-bouteille-flacon (bottle), pot-pot (jar), doos-boîte (box)
40 items per category:

good, borderline, and bad examples of target category

Task: category judgment task

Participants:

± 400 monolingual Dutch- and ± 300 French-speaking Belgian adults (age 17 to 75)

Analyses:

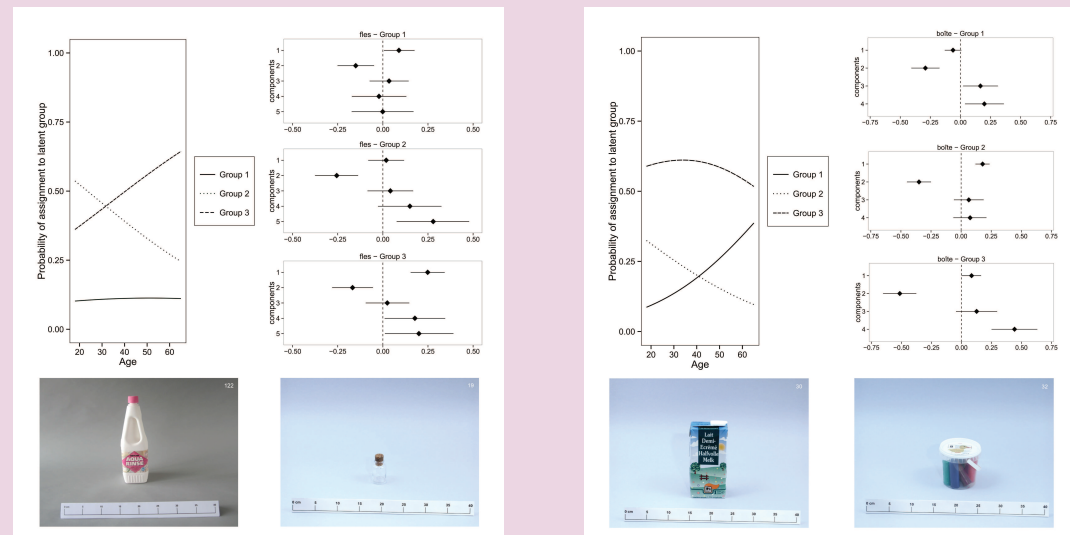
- I. mixture Item Response Theory (IRT) model
→ Identification of latent groups of categorizers

$$\Pr(Y_{ci} = 1) = \frac{e^{z_{gi}(\beta_{gi} - \theta_c)}}{1 + e^{z_{gi}(\beta_{gi} - \theta_c)}}$$

See also: Verheyen, Voorspoels, & Storms (2015)

- II. Logistic regression analysis
→ association latent groups with participant characteristics:
age, education level, gender
- III. Bayesian multiple linear regression (BMLR)
→ identification of differences in feature weights by different latent groups

Results



The left upper panels in both figures represent the probability of assignment to one of the three latent groups as a function of age for the Dutch category *fles*. The right upper panels in both figures represent the effects of the principal components on the group-specific categorization criterion as indicated by the regression weights. The horizontal lines indicate the 95% HDI of the posterior of the components' regression weights. The diamonds indicate the regression weights' posterior means.

Conclusion

In both languages, older adults relied more on "classic" materials such as glass or cardboard in their decision, whereas younger adults emphasized relatively "new" materials such as plastics. Common, everyday words for artifacts such as 'bottle' have undergone a gradual shift of meaning in a relatively short time span. Our findings demonstrate a large extent of variability and flexibility that is in contrast with the assumption of stable, shared representations being essential for successful communication (Keil, 1994).

References

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